

WHAT IS CLAIMED IS:

5 1. A method for recovering coalbed methane comprising:
tunneling along a seam of coal to a point below a water table
and at a depth below the water table sufficient for dissolved
methane to be present in the water;
separating a portion of the water containing dissolved methane
10 while below the water table;
reducing pressure on the separated portion for extracting
dissolved methane;
removing the extracted methane; and discharging the separated
portion of water after extracting dissolved methane.

15 2. A method according to claim 1 wherein the tunneling
begins at a point above the water table.

 3. A method according to claim 1 wherein the tunneling
begins in an abandoned coal mine.

20 4. A method according to claim 1 wherein the tunneling
begins in an existing coal mine.

 5. A method according to claim 1 wherein the tunneling
begins at a natural outcrop of a coal bed.

25 6. A method according to claim 1 also comprising
providing at least one branch tunnel from a primary tunnel in
the seam of coal.

30 7. A method according to claim 1 wherein the
discharging comprises conveying the separated portion of water
after extracting dissolved methane to a point where any
dissolved methane remaining in the separated portion is equal
in concentration or lower than that of any surrounding water
35 for discharge.

8. A method according to claim 1 wherein the
discharging comprises conveying the separated portion of water
5 after extracting dissolved methane to a point just above the
water table for discharge.

9. A system for recovering coalbed methane comprising:
a boring machine adapted for tunneling along a seam of coal to
10 a point below a water table and to a depth below the water
table sufficient for dissolved methane to be present in the
water;

 a separator adapted for separating a portion of the
water containing dissolved methane while below the water table
and extracting dissolved methane from the separated portion;
15 a first conduit adapted for removing the extracted methane;
and

 a second conduit adapted for discharging the
separated portion of water after the extraction of dissolved
20 methane.

10. A system according to claim 9 wherein the boring
machine is rotary.

11. A system according to claim 9 also comprising a
25 conveyor belt to remove coal from the tunnel formed by the
boring machine.

12. A system according to claim 9 wherein the boring
machine is automated and remote controlled.

13. A system according to claim 9 wherein the boring
30 machine is adapted for traveling on rails and also comprising
rails that extend along at least a portion of the tunnel
formed by the boring machine.

14. A system according to claim 13 also comprising an
automated rail-laying machine for adding sections to the rails
5 as they extend into the coal bed.

15. A system according to claim 13 wherein the rails are
cog rails.

10 16. A system according to claim 13 wherein the rails are
comprised of rail sections and also comprising conveyor belt
sections attached to the rail sections for removing coal.

15 17. A system according to claim 9 also comprising an
electrical line extending along the tunnel for providing power
to any system components requiring electric power.

18. A system according to claim 17 wherein the rails are
comprised of rail sections and the electrical line is
comprised of segments attached to the rail sections and
20 adapted for interconnection as the rail sections are joined
together.

19. A system according to claim 18 wherein each of the
electrical line segments has a switch that is turned on only
after two electrical line segments are attached together.
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20. A system according to claim 9 wherein the boring
machine is powered by electricity.

21. A system according to claim 20 wherein at least a
portion of the electricity to power the boring machine is
30 generated by burning coal extracted by the boring machine.

22. A system according to claim 9 also comprising an
excavating machine adapted for forming at least one branch
tunnel to the tunnel formed by the boring machine.
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23. A system according to claim 22 also comprising at least one additional separator for a branch tunnel.

5 24. A system according to claim 9 wherein the separator comprises a cylinder, a first piston sealingly movable at a first end of the cylinder, a second piston sealingly movable at a second opposed end of the cylinder, a water intake valve, a methane outlet valve and a water outlet valve.

10 25. A system according to claim 24 also comprising means for controlling the timing for the opening and closing of the water intake valve, the methane outlet valve and the water outlet valve.

15 26. A system according to claim 25 wherein the means for controlling comprises a water level sensor on an internal wall of the cylinder and a second sensor on an internal face of the first piston.

20 27. A system according to claim 9 wherein the separator comprises a centrifuge.

25 28. A system according to claim 9 wherein the second conduit conveys the separated portion of water after extraction of dissolved methane to a point where any dissolved methane remaining in the separated portion is equal in concentration or lower than that of any surrounding water for discharge.

30 29. A system according to claim 9 wherein the second conduit conveys the separated portion of water after extraction of dissolved methane to a point just above the water table for discharge.

35 30. A system for recovering coalbed methane comprising:

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 means for tunneling along a seam of coal to a point
below a water table and to a depth below the water table
5 sufficient for dissolved methane to be present in the water;

 means for separating a portion of the water
containing dissolved methane while below the water table and
extracting dissolved methane from the separated portion;

means for removing the extracted methane; and

10 means for discharging the separated portion of water
after the extraction of dissolved methane.

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